In the specification:

Please replace line 7 on page 1 with the following:

A1 AIR FLOW SENSOR USING MEASUREMENT OF RATE OF HEAT LOSS

A marked up copy of page 1 of the specification is included herewith.

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and requests reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

The Examiner states that the title of the invention is not descriptive. The applicants have amended the title.

The Examiner rejects claims 1-17 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,629,482 to *Vaitkus et al.* in view of U.S. Patent No. 4,722,611 to *Hultgren*. The Examiner also rejects claims 1-17 under 35 U.S.C. §103(a) as being unpatentable over *Vaitkus et al.* in view of U.S. Patent No. 5,918,473 to *Gendron et al.*

While there are numerous prior art devices which apply power and measure the amount of power required to keep a device at a constant temperature, or which apply voltage for a constant time period to two different devices and measure a difference between input and output voltages between the devices, in order to determine air flow rate or other parameter, the applicants' invention is not such a device. The Examiner admits that, in contrast to the applicants' claimed invention, "*Vaitkus et al.* does not disclose a time period that it takes the temperature dependent resistor device to change from a first temperature to a second temperature to determine the heat loss rate of the temperature dependent resistor device". Neither *Hultgren*

nor *Gendron et al.* fill that void.

Moreover, *Hultgren* and *Gendron at al.* are fundamentally different in structure and function than the applicants' claimed invention.

Hultgren teaches applying a voltage across a thermistor in a bridge circuit for a predetermined time period, then comparing the voltage output after the thermistor is placed in first a reference liquid and then in an unknown test liquid. *Hultgren*'s aim is to determine the quenchant properties of the unknown test liquid by comparing the quenchant properties of an unknown to a reference liquid with known quenchant properties. *Hultgren*'s thermistor changes resistance in accordance with the thermal conductivity of the liquid in which it is immersed.

In contrast to the applicants' claimed invention, *Hultgren* teaches that each test is conducted for the same amount of time, which is controlled by the timer, the timer controlling the duration of time voltage is applied. See the *Hultgren* Abstract. See also *Hultgren* at col. 7, lines 47-50, col. 12 lines 55-59, and col.13, line 65 through col. 14, line 5. *Hultgren* then proceeds to compare the cooling curves of the reference liquid and the unknown test liquid. See, e.g., Figs. 4 and 5.

In contrast to the applicants' claimed invention, *Hultgren* does not teach or suggest timing the time period that it takes the temperature dependent resistor device to change from a first temperature to a second temperature in order to determine the heat loss rate of the temperature dependent resistor device. Not surprisingly, because *Hultgren* does not teach this element of the applicants' claimed invention, *Hultgren* also fails to teach the applicants' claimed structure.

Gendron et al. also teaches measurement of quenchant properties of coolants, highly similar to *Hultgren* and highly dissimilar to the applicants' claimed invention.

Gendron et al. teaches a probe having a temperature sensing electrical device contained therein which generates an electrical response corresponding to a temperature sensed, heating the probe in a gas to a predetermined temperature, immersing the probe into a sample, and measuring the electrical response for a predetermined measurement period. Then, *Gendron et al.* compares the measured electrical response to a response of a reference liquid measured under equivalent conditions to determine the quenchability property of the liquid coolant. See the *Gendron et al.* Abstract. Fig. 7 of *Gendron et al.* shows a typical probe temperature profile where temperature is allowed to fall for a predetermined time period of about 1 second, then the probe is immersed in a coolant to generate a decay profile. See *Gendron et al.* col. 10, lines 6-24. In contrast to the applicants' claimed invention, *Gendron et al.* does not teach or suggest measuring the time period it takes the temperature dependent resistor device to change from a first temperature to a second temperature in order to determine the heat loss rate of the temperature dependent resistor device.

Accordingly, it is clear that both *Hultgren* and *Gendron et al.* in fact teach away from the applicant's claimed invention by using predetermined time periods (to ultimately measure properties of a quenchant) rather than timing the period of time it takes a temperature dependent resistor device to change from a first to a second temperature (to ultimately determine the heat loss rate of the temperature dependent resistor device).

Additionally, the *Vaitkus et al.* reference cited by the Examiner teaches away from the applicants' claimed invention. *Vaitkus et al.* requires analog-to-digital converter 409. See *Vaitkus et al.* at col. 10, lines 45-48 and col. 17, lines 1-2, as well as Fig. 4. One of the objects of the applicants' claimed invention is to provide an airflow sensor which does not require an (expensive) analog-to-digital converter. See e.g., the specification at page 4, lines 19-21, as well

as page 5, lines 11-22.

Moreover, in contrast to the applicants' claimed invention, *Vaitkus et al.* does not disclose a second comparator. Rather, *Vaitkus et al.* discloses amplifiers 404 and 408, with the CPU 410 acting as the comparator to compare the outputs from the two sensors and to compute the output component dependent only on the desired parameter. See, e.g., *Vaitkus et al.* at col. 17, lines 24-27.

Also in contrast to the applicants' claimed invention, *Vaitkus et al.* does not teach or suggest an air flow sensor configured to apply a voltage to a temperature dependent resistor device until it reaches a first temperature; allows it cool until it reaches a second temperature; and then measures the time it takes the temperature dependent resistor device to change from the first temperature to the second temperature to determine the heat loss rate of the temperature dependent resistor device. Further, *Vaitkus et al.* does not teach or suggest a temperature dependent resistor device connected to *both* of the variable resistance legs.

Vaitkus et al. teaches two identical thin films/sensors, and each one is a temperature dependent device. See, e.g., *Vaitkus et al.* at column 16, lines 22-23, as well as column 3, lines 1-24, 48-53, and Fig. 1. *Vaitkus et al.* then places one thin film/sensor in a fluid and one out of the fluid so that the output of each sensor differs only relative to the flow rate. See *Vaitkus et al.* at column 16, lines 39-53:

> In brief, two sensors are identical and the circumstances different only in whether or not there are in contact with a fluid ... on comparing the output of the two sensors ... only the output component corresponding to the flow rate can be obtained which does not pertain to other parameters.

In summary, *Vaitkus et al.* does not measure the temperature change of a single temperature dependent device. Instead, in *Vaitkus et al.* the differences between two temperature dependent devices placed in different environments is determined. *Vaitkus et al.* does not teach or suggest the use of the period of time it takes for the temperature change in a temperature dependent device as a way of determining the heat loss rate.

Finally, the Examiner in this instance has not shown by objective teaching in the prior art that one of ordinary skill in the art would be lead to combine the teachings of the references. See, e.g., In re Sang Su Lee, 277 F.3d 1338, 61 USPQ 2d 1430, 1433-1434 (Fed.Cir. 2002). *Vaitkus et al.* teaches an apparatus to measure flow rate. *Hultgren* and *Gendron et al.* teach an apparatus for measuring quenchant properties of coolants. It is apparent that with respect to *Vaitkus et al.* (and the applicants' claimed invention), *Hultgren* and *Gendron et al.* constitute non-analogous art.

For the reasons herein, neither *Vaitkus et al.*, *Hultgren*, nor *Gendron et al.*, separately or in combination, teach or suggest the applicants' claimed invention.

CONCLUSION

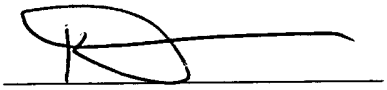
Accordingly, claims 1-17 are in condition for allowance. Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the

DGR-102J
TET:ci

undersigned or his associates, collect in Waltham, Massachusetts, (781)890-5678.

Respectfully submitted,



Kirk Teska
Reg. No. 36,291

DGR-102J
TET:ci